SUPPLY-CHAIN PERFORMANCE SUBCOMMITTEE MINUTES

Date: June 5, 2008/June 11, 2008
Location: Teleconference Only
Time: 1:30pm – 2:30pm (PDT)
Participants:

Chelsea Boone – GSA
Dan Wark – Amalfi Semiconductor
Ed Pausa - PricewaterhouseCoopers LLP
Eelco Bergman - Vietnam-Chipscale Advanced Packaging Services
George Wu - PMC-Sierra, Inc.
Jay Seaton - Ambric, Inc.

Meeting Purpose:

- To verify that the Wafer & Back-End Pricing Survey results are representative of the industry.

Actions Completed / Items Discussed:

- **Wafer Section**
  - GSA Q108 # of Wafers Purchased = 814,131
  - SICAS Q407 Wafers Per Week = 291.3K
  - 21% coverage, which is a good representation of the industry
- **Assembly / Packaging Section**
  - GSA Q108 Units Assembled = 800M per quarter
  - Gartner Q108 Forecast = 42B per quarter
  - 2% coverage, not a good representation of the industry
  - Disregard 60% of unit volume (assuming it is run captively) and GSA covers 5% of the market. This is low representation when looking at different packaging options. EX: The two largest unit assembled values in Q108 came from PDIP – 98.48M and 55.23M – which is not very relevant anymore.
  - We are not getting a high percentage of IDM participants.
  - 40% of all packaging is outsourced today, which means we should be able to get good data from the fabless industry.
  - Need to look at the functional title of the individual that is participating. Usually, one person cannot fill out all four sections. At the larger companies there is a different individual over foundry, assembly, test, etc. Need the right point of contact.
  - Issue with assembly section: Subcommittee has had a difficult time coming up with a methodology for this section. It can get complex, especially with substrate-based packaging. Is there really a happy medium? – some companies want a high-level overview, while others want detail.
  - 1st step: GSA needs to ask its participants (those that look at the results and those that input the data) if they find the assembly data meaningful, to what degree would they fill out the survey, and if we should only look at new technology packaging (which small-to medium-sized companies are interested in) and what those packages should be.
- **Test Section**

- Joe Holt Data Analysis
  Q307 Units Tested (volume) data entry spread: 1 to 50,601,500 units

Volume Range	Quantity	Percent
1 to 999	33	19%
1K to 99K	27	16%
10K to 99K	37	21%
100K to 999K	48	28%
1M to 100M	28	16%
Total	173	

  45% of the entries (78) are < 25K units
  Finding: Many of the individual data entries have too little volume to be considered statistically significant.
- Result: Need to make buckets bigger.
- At this time, after consulting with Grant Thornton, GSA decided to take out the field "Tester Platform," as we don't want to mention any company names without their approval. GSA will contact those test service providers to see if they would have an issue with GSA adding this field.

▪ **Bumping Section**

- We will keep this section as part of the survey, as bumping activity is going up over time.

▪ **Additional Items**

- GSA is doing a comparison of those companies that participated in the Wafer survey, but not in the test, assembly or wafer bump surveys over the past four quarters. GSA or Grant Thornton will contact these companies to ask why they participate in wafer, but not in the others.
- GSA will discuss with GT that they need to look at every variable within the formulas we use and identify outliers, not just Price Per Wafer, Price Per Lead, etc., but wafers purchased, units assembled, etc.